

Date: Tuesday, 02/06/2009 3:55:07 PM
 User: Julie Dawson

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services	Drawing Name : 212/205 HIGH FED X-TUBE ASSEMBLY
Job Number : 48316	
Estimate Number : 13216	
P.O. Number :	Part Number : D212664101TRN
This Issue : 02/06/2009 S.O. No. :	Drawing Number : D212-664-141 REV C
Prsht Rev. : NC	Project Number : N/A
First Issue : / / Type : CROSSTUBES	Drawing Revision : C
Previous Run : 47781	Material :
Written By :	Due Date : 09/06/2009 Qty: 1 Um: Each
Checked & Approved By : <u>JUD 09.06.08</u>	
Comment : Est Rev:A 08-03-06 new issue DD verified by:ec Est Rev B 08.04.02 removed Polish EC verified by: DD	

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
----------------	------------------------------	----------------------

1.0	D6005128	Crosstube Material
-----	----------	--------------------



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part number Description Batch

1 D6005-128

Crosstube

B3833A

Check OD = 2.750"; ID = 2.000"

A.M 09.06.04①

2.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE
-----	------------	----------------------------

**Comment:** MORI SEIKI CNC LATHE LARGE

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA113

2-Turn first side as per Folio FA113

3-File down transition lines smooth.

A.M 09.06.04①

3.0	QC1	INSPECT ALL DIM TO DIM SHEET
-----	-----	------------------------------

**Comment:** INSPECT ALL DIM TO DIM SHEET

A.M 09.06.04①

4.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE
-----	------------	----------------------------

**Comment:** MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA113

2-File down transition lines smooth.

3-Remove sand and plugs

A.M 09.06.04①

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 02/06/2009 3:55:07 PM
User: Julie Dawson

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 212/205 HIGH FED X-TUBE ASSEMBLY

Job Number: 48316

Part Number: D212664101TRN

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

A.M. 09-06-04

6.0

QC8

SECOND CHECK



Comment: SECOND CHECK

A.M. 9-6-5

①

7.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

A.M. 9-6-5

①

8.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

A.M. 09-06-05

9.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock in kanban rack

Location: *X-TUBE*

CELL

A.M. 9-6-5

①

10.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

09/06/05

Job Completion



MF 09-06-05

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order: 48310
Description: Crosstube Assembly (205/212/412 High Fwd)		Part Number: D212-664-141
Inspection Dwg: D212-664-141 Rev: C		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

Inspection Sheet	Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.200	+/-0.010	0.200	✓			
	R0.063	+/-0.010	R0.063	✓			
	2.740	+0.005/-0.000	2.741	✓			
	5.097	+/-0.030	5.097	✓			
	2.304	+0.005/-0.000	2.309	✓			
	2.340	+0.005/-0.000	2.344	✓			
	2.398	+0.005/-0.000	2.402	✓			
	2.448	+0.005/-0.000	2.451	✓			
	2.498	+0.005/-0.000	2.501	✓			
	2.549	+0.005/-0.000	2.554	✓			
	2.599	+0.005/-0.000	2.604	✓			
	2.671	+0.005/-0.000	2.674	✓			
	2.701	+0.005/-0.000	2.704	✓			
SIDE B	0.200	+/-0.010	0.200	✓			
	R0.063	+/-0.010	R0.063	✓			
	2.740	+0.005/-0.000	2.741	✓			
	5.097	+/-0.030	5.097	✓			
	2.304	+0.005/-0.000	2.309	✓			
	2.340	+0.005/-0.000	2.344	✓			
	2.398	+0.005/-0.000	2.402	✓			
	2.448	+0.005/-0.000	2.451	✓			
	2.498	+0.005/-0.000	2.504	✓			
	2.549	+0.005/-0.000	2.554	✓			
	2.599	+0.005/-0.000	2.604	✓			
	2.671	+0.005/-0.000	2.674	✓			
	2.701	+0.005/-0.000	2.704	✓			
	126.51	+/-0.020	126.520	✓			

Measured by: am	Audited by: ALM	Prototype Approval: N/A
Date: 09.06.04	Date: 9-6-5	Date: N/A

Rev	Date	Change	Revised by	Approved
A	05.04.27	New Issue (P/O D412-664-101)	KJ/JLM	
B	06.03.15	Tolerance revised for 5.097 per Dwg Rev update	KJ/JLM	
C	07.05.28	Dwg Rev updated	KJ/JLM	

DART

DESIGN PH	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED GP	APPROVED PH	DRAWING NO. D212-664-141	REV. C SHEET 1 OF 3
DATE 07.03.08		TITLE XTUBE ASS'Y (205/212/412 HI FWD) NTS	
A	00.12.12	NEW ISSUE	
B	05.02.04	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	
C	07.03.08	REMOVE -851 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	

RELEASED

07.04.24

Qty	Part Number	Description
X	D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
1	D6005-128	CROSSTUBE
2	D2893-1	SUPPORT
4	D3595-063-450	RUBBER CUSHION
4	MS21920-25	CLAMP (OR MS21920-26)
A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

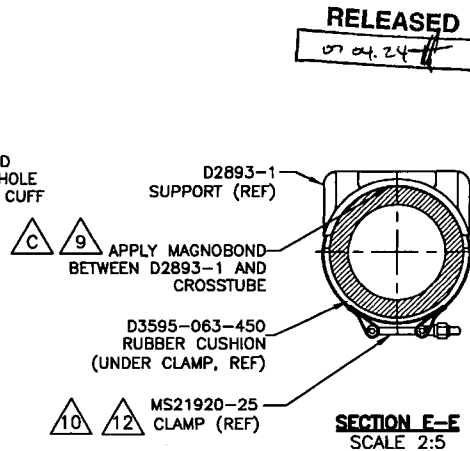
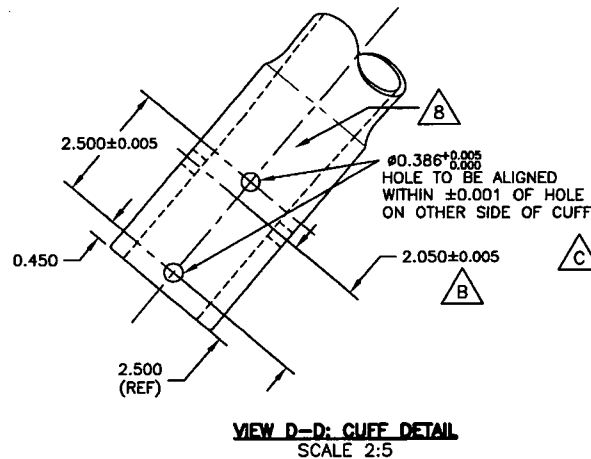
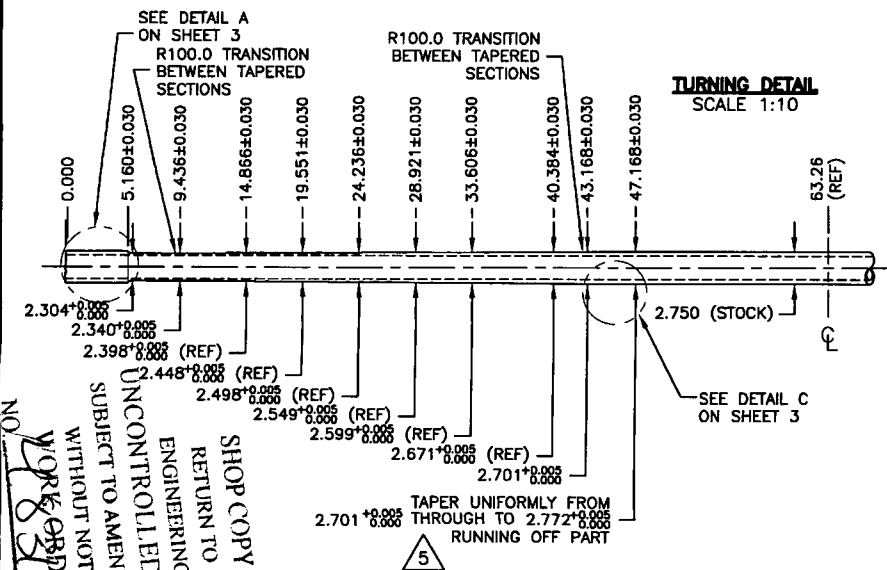
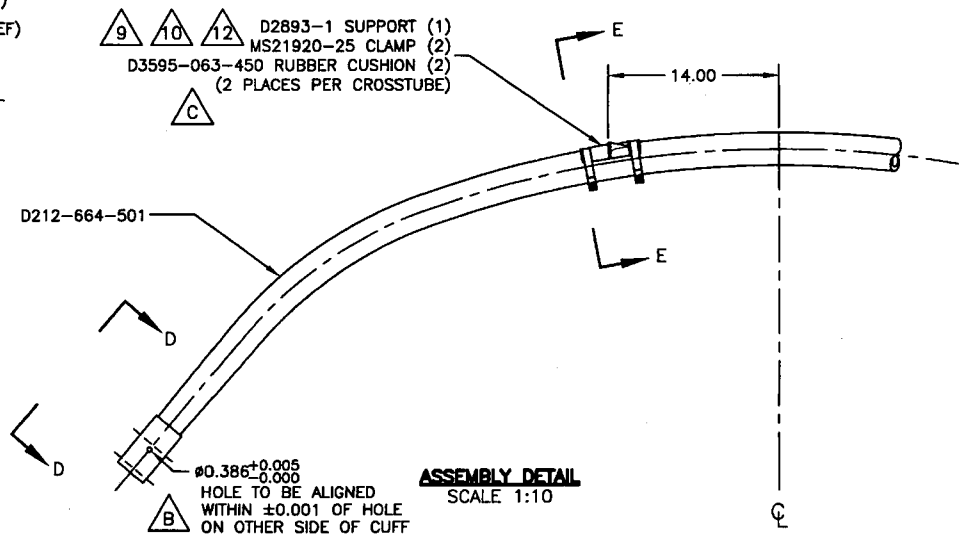
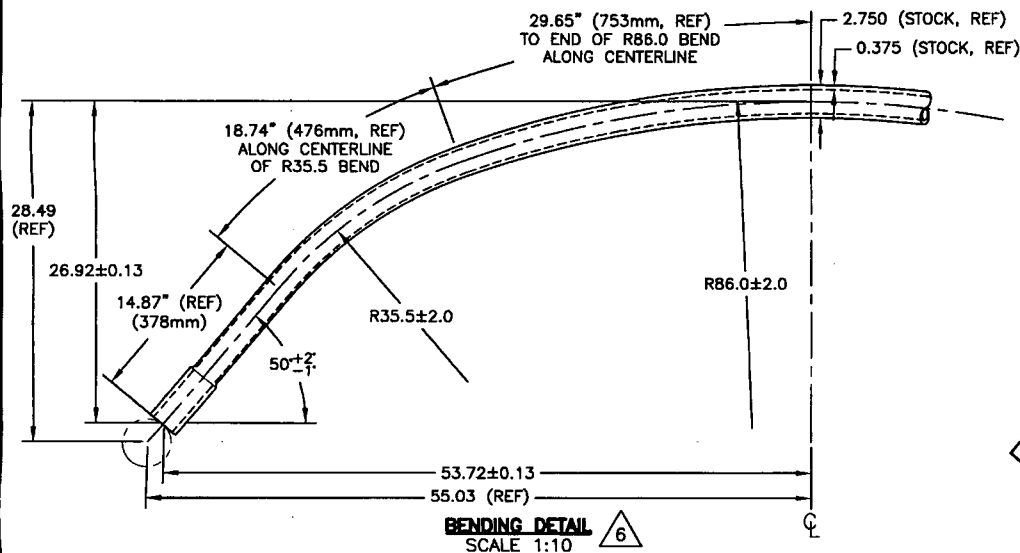
GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6005-128
FINISHED LENGTH = 126.51±0.020
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 10) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT
- 11) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 12) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY WORK ORDER AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

CONTROLLED COPY
RETURN TO THE ENGINEERING
DEPARTMENT
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 48314

Copyright © 2000 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

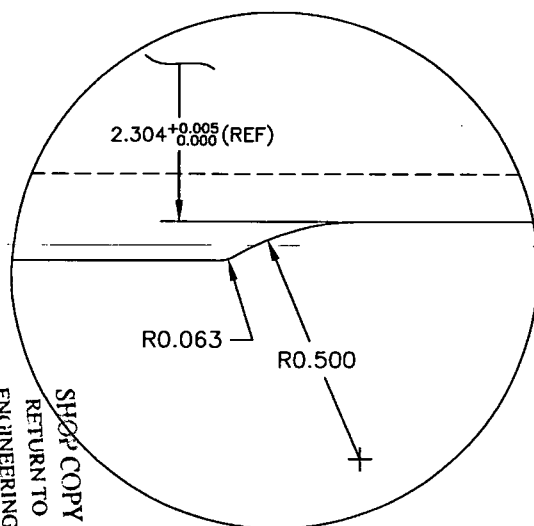
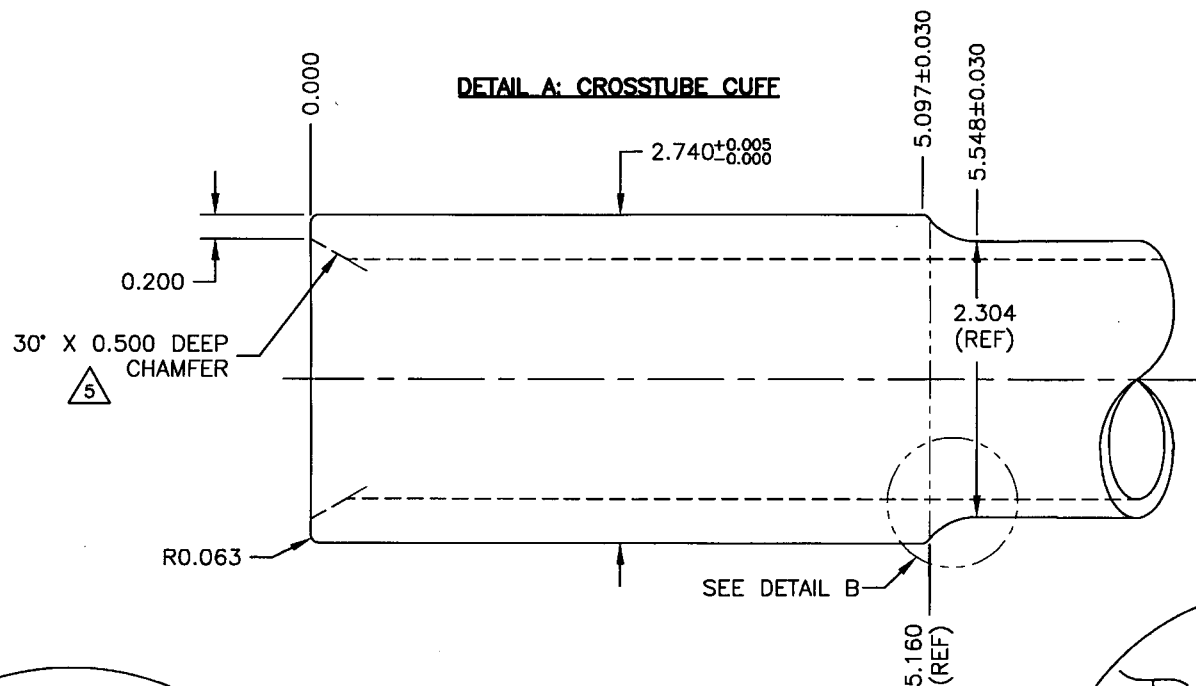


COPYRIGHT © 2000 BY DART AEROSPACE LTD.		DESIGN	PH	DRAWN BY	PH	DART	DART AEROSPACE LTD. HAMPSHIRE, ONTARIO, CANADA
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.		CHECKED	PH	APPROVED	PH	DRAWING NO.	REV. C
		DATE	07.03.08			D212-664-141	SHEET 2 OF 3
						XTUBE ASS'Y (205/212/412 HI FWD)	SCALE 1:10

NO. 1000
WORK ORDER
WITHOUT NOTICE
UNCONTROLLED COPY
ENGINEERING
RETURN TO
SHOP COPY

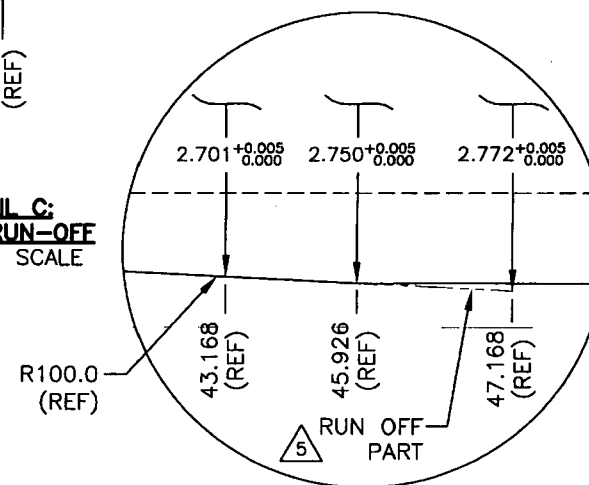
RELEASED
07.04.24

RELEASED
 67.04.24 (P)
 PER DCN 883



**DETAIL B: CUFF
 TRANSITION
 SCALE 4:1**

**DETAIL C:
 TAPER RUN-OFF
 NOT TO SCALE**



COPYRIGHT © 2000 BY DART AEROSPACE LTD.

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

DESIGN PH	DRAWN BY PH	DART	DART AEROSPACE LTD. HARRISBURG, ONTARIO, CANADA
CHECKED J	APPROVED J	DRAWING NO. D212-664-141	REV. C SHEET 3 OF 3
DATE 07.03.08	TITLE XTUBE ASS'Y (205/212/412 HI FWD)	SCALE 1:1	

NO. 48274
 WORK ORDER
 WITHOUT NOTICE
 UNCONTROLLED COPY
 SUBJECT TO AMENDMENT
 ENGINEERING
 RETURN TO
 SHOP COPY